PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. 7475-66667 APPLICANT Carl T. Wittwer et al.		SERIAL NO. 109/631,339					
									NOV
··		DOCUMENT	BADEMARKS U.S	S. PATE	NT DOCUMENTS	-		3332 133	
EXAMINER INITIALS		DOCUMENT NUMBER	DATE		NAME	CLASS	SUBCLASS	FILING DATE	
14/5	AA	5,585,242	12/17/96	BOUMA	ET AL.				
	AB	5,565,322	10/15/96	HELLE	<u> </u>				
	AC	5,563,037	10/08/96	SUTHE	RLAND ET AL.	<u> </u>			
	ΑD	5,455,175	10/03/95	WITTW	ER ET AL.				
	AE	5,436,134	07/25/95 .	HAUGL	AND ET AL.				
	AF	5,425,921	06/20/95	COAKL	EY ET AL.			<u> </u>	
	AG	5,415,839	05/16/95	ZAUN F	ET AL.				
	АН	5,380,489	01/10/95	SUTTO	N ET AL.				
	AI	5,364,790	11/15/94	ATWO	DD ET AL.				
	AJ	5,348,853	09/20/94	WANG ET AL. STAPLETON ET AL.					
	AK	5,346,672	09/13/94						
	AL	5,333,675	08/02/94	MULLIS	S ET AL.				
	AM	5,316,913	05/31/94	витсн	ER ET AL.				
	AN	5,240,577	08/31/93	JORGE	NSON ET AL.				
	AO	5,234,586	08/10/93	AFEYA	N ET AL.				
	ΑP	5,187,084	02/16/93	HALLS	BY				
	AQ	5,173,163	12/22/92	TEHRA	NI				
	AR	5,169,521	12/08/92	OKA E					
_	AS	5,169,511	12/08/92		STON ET AL.				
	AT	5,141,621	08/25/92	ZARE					
	AU	5,137,695	08/11/92		K ET AL.				
	AV	5,131,998	07/21/92	T	NSON ET AL.				
	AW	5,116,471	05/26/92	CHIEN					
	AX	5,114,551	05/19/92	1.	EN ET AL.				
1	AY	5,038,852	08/13/91		ON ET AL.				
While	AZ.	4,981,801	01/01/91		I ET AL.				
EXAMINER	W	10			DATE CONSIDER	ED 2/	9/04		

d

SERIAL NO 09/631,339 U.S. DEPARTMENT OF COMMERCE ATTY. DOCKET NO. PTO-1449 PATENT AND TRADEMARK OFFICE 7475-66667 APPLICANT LIST OF PRIOR ART CITED BY APPLICAN Carl T. Wittwer et al. MOV 0 2 2000 FILING DATE GROUP August 3, 2000 unknown PATENT DOCUMENTS FILING DATE **EXAMINER** DOCUMENT SUBCLASS IF APPROPRIATE INITIALS NUMBER DATE NAME CLASS 4,965,188 10/23/90 MULLIS ET AL. COLUMBUS ET AL BB 4,902,624 02/20/94 GELFAND ET AL. BC 4,889,818 12/26/89 STAVRIANOPOULOS ET AL. BD 4,868,103 09/19/89 4,865,986 09/12/89 COY ET AL. BE BF 4,708,782 11/24/87 ANDRESEN ET AL. 4,701,415 10/20/87 DUTTON ET AL BG вн 4,684,465 08/04/87 LEASEBURGE ET AL MULLIS Βl 4,683,202 07/28/87 MULLIS ET AL. ΒĴ 4,683,195 07/28/87 ZARE ET AL. 06/23/87 BK 4,675,300 07/08/86 RAY BL 4,599,169 11/06/84 MALICK: ВМ 4,481,405 BN 4,468,423 08/28/94 HALL 12/13/83 HOWE BO 4,420,679 SISTI ET AL. 4,286,456 09/01/81 ANDERWALD 4,168,017 09/18/79 BQ 07/25/77 VARANO ET AL. 4,038,055 BR 10/26/71 RAY ET AL. BS 3,616,264 2,379,474 07/03/45 BRAMSON BT HARRIS 05/22/23 ΒU 1,456,005 MAUGER ΒV 10/24/11 1,006,767 вw 5/11/93 **GELFAND ET AL.** 5,210,015 West 3,219,416 11/23/65 NATELSON **EXAMINER** DATE CONSIDERED *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and

not considered. Include copy of this form with next communication to applicant.

PTO-1			ARTMENT OF COMMERCE AND TRADEMARK OFFICE		ATTY. DOCKET NO. 7475-66667		SERIAL NO. 09/631,339	
LIST	LIST OF PRIOR ART CITED			, Le	APPLICANT Carl T. Wittwer et al.		3700	REO
i			HOV 0 2 2000		FILING DATE August 3, 2000		RECTIVED RECTIVED RECTIVED ROUP ALL RECTIVED	
			FORE	GN PA	FENT DOCUMENTS		× × × × × × × × × × × × × × × × × × ×	& U
		DOCUMENT NUMBER	DATE		COUNTRY	CLASS	SUBCLASS	TRANSLATION YES NO
MB)	CA	0 640 828 AI	08/16/94	EPO				
	СВ	0 488 769 A2	11/29/91	EPO				
	CC .	0 475 760 A2	09/12/91	EPO				· ·
	CD	0 459 241 AI	05/16/91	EPO				V
	CE	0 236 069 A2	02/25/87	EPO				
	CF	0 229 943 A2	01/12/85	EPO	·		,	
<u>: </u>	cG	0 566 751	10/27/93	EPO				
	СН	0 636 413	2/1/95	EPO	· · · · · · · · · · · · · · · · · · ·			
	CI	0 318 255	5/31/89	EPO				
	CJ	0 674 009	9/27/95	EPO				
	СК	0 404 258	12/27/90	EPO				<u> </u>
	CL	0 686 699	12/13/95	EPO				
	СМ	0 643 140	3/15/95	EPO				
	CN	3 808 942 A1	09/28/89	DE				
	co	6 212 986	03/23/87	JP (Absti	ract)			
	CP	2 122 187	8/25/72	FR				
	cQ .	WO 95 13399	- 5/18/95	PCT				
	CR	WO 95 21382	8/10/95	PCT				
	cs	WO 96 06354	2/29/96	PCT				·
	ст	WO 96 00901	1/11/96	PCT				
	CU	WO 95 32306	11/30/95	PCT				
	cv	WO 95 30139	11/09/95	РСТ				
Y	cw	WO 92 20778	11/26/92	PCT				
Wes	сх	WO 89 09437	10/05/89	PCT	` .	<u></u>		
~								
EXAMINER	W	N			DATE CONSIDERED	2/9	109	
*EXAMINER	: Initial i	f reference considered	I, whether or not citat	ion is in co	ntormance with MPEP 609; I	Draw line throug	gh citation if not i	n conformance and

PTO-			ATTY. DOCKET NO. 7475-66667	SERIAL NO. 09/631,339—			
LIST	OF PR	ORARY CITED BY APPLICANT	APPLICANT Carl T. Wittwer et al.	RECE NOV-			
		NOV 0 2 2000	FILING DATE August 3, 2000	FIVED			
		OTHER PRIOR ART (Including	ng Author, Title, Pertinent Pages, Et	RDOM			
WO	DA	Barnes, W.M., "PCR Amplification of up Proc. Natl. Acad. Sci. USA, Vol. 91, pp. 2	to 35-kb DNA with High Fidelity and High Yield from λ Bacteriophage Templates," 2216-2220 (1994).				
	DB	Brown, A.B., et al., "Rapid Cycle Amplifi Edited by: Horton, R.M., Horizon Scientif	cation For Construction of Competitive Templic Press, Wymondham, U.K., Chap. 4 (1997)	lates," Genetic Engineering with PCR,			
	. DC	Cao, T.M., "A Simple and Inexpensive Sys	stem to Amplify DNA by PCR," BioTechniqu	es, Vol. 7, No. 6, pp. 566-67 (1989).			
	DΕ	Cardullo, R.A., et al., "Detection of Nuclei Proc. Natl. Acad. Sci. USA, Vol. 85, pp. 8	ic Acid Hybridization by Nonradiative Fluores	scence Resonance Energy Transfer,"			
	DF	Cotton, R. G. H, "Detection of Single Base 1, 1989.	Changes in Nucleic Acids", <u>The Biochemics</u>	ıl Journal, Vol. 263, pp. 1-10, October			
	DG	Denton, P., et al., "A Low-Cost Air-Driver M.A. Innis, et al., Academic Press, Inc., Sa	o Cycling Oven," PCR Protocols: A Guide to Non Diego, Chap. 52, pp. 435-41 (1990).	Methods and Applications, Edited by			
	DH		Findlay, J.B., et al., "Automated Closed-Vessel System for in Vitro Diagnostics Based on Polymerase Chain Reaction," Cl. Chemistry, Vol. 39, No. 9, pp. 1927-33 (1993).				
	DI		Ghosh, S.S., et al., "Real Time Kinetics of Reduction Endonuclease Cleavage Monitored by Fluorescence Resonance Energy Transfer," Nucleic Acids Research, Vol. 22, No. 15, pp. 3155-59 (1994).				
	נס	Goldner, H., "PCR update: New Technique	Goldner, H., "PCR update: New Techniques Multiply Uses," R&D Magazine, Vol. 36, No. 4, pp. 55 (March 1994).				
	DK	Graham, A., "A Haystack of Needles: App September 1994).	Graham, A., "A Haystack of Needles: Applying the Polymerase Chain Reaction," Chemistry and Industry, No. 18, pp. 718 (19 September 1994).				
	DL	Gustafson, C.E., et al., "Effect of Heat Der (1993).	naturation of Target DNA on the PCR Amplif	ication," <u>Gene</u> , Vol. 123, pp. 241-44			
	DM	Higuchi, R., et al., "Simultaneous Amplifit 413-17 (1992).	cation and Detection of Specific DNA Sequen	ces," <u>Bio/Technology</u> , Vol. 10, pp.			
	DN	Higuchi, R., et al., "Kinetic PCR Analysis: pp. 1026-30 (1993).	Real-time Monitoring of DNA Amplification	Reactions," <u>Bio/Technology</u> , Vol. 11,			
	DO		mental and Theoretical Thermal Denaturation nerichia coli Lactose Genetic Control Region,				
	DP		Hiyoshi, M., et al., "Assay of DNA Denaturation by Polymerase Chain Reaction-Driven Fluorescence Resonance Energy Transfer," Analytical Biochemistry, Vol. 221, pp. 306-11 (1994).				
	DQ	Hoffman, L.M., et al., "Use of a Gas Chror BioTechniques, Vol. 6, No. 10, pp. 932-36	natograph Oven for DNA Amplification by th (1988).	e Polymerase Chain Reaction,"			
V	DR		c Polymerase Chain Reaction Product by Utili Proc. Natl. Acad. Sci. USA, Vol. 88, pp. 7276				
Wes	DS	Hopfenbeck, J.A., et al., "Digoxigenin-Lab American Journal of Clinical Pathology, V	eled Probes Amplified from Genomic DNA D ol. 97, No. 5, pp. 638-44 (1992).	etect T-Cell Gene Rearrangements,"			
EXAMINER	h	1. A	DATE CONSIDERED 2/9	104			
	EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.						

. PTO-14	149	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 7475-66667	SERIAL NOD 09/631,339 W 70			
LIST	OF PRIC	OR ART CITED BY APPLICANT	APPLICANT Carl T. Wittwer et al.	CEIVE			
		HOA 0 5 5000 F	FILING DATE August 3, 2000	GROUP ROOF			
		TRADEMA					
Cha	1		ng Author, Title, Pertinent Pages, Et				
Will	DY		tative Assay of Hepatitis C Virus RNA by Pol Biochemistry, Vol. 229, pp. 207-13 (1995).	ymerase Chain Reaction in the Presence			
	DZ	Kang, J., et al., "Exact Quantification of E Chap 15, pp. 189-98 (1995).	NA-RNA Copy Numbers by PCR-TGGE," P	CR Strategies, Academic Press, Inc.,			
	EA		or Sequence on the Stability of Base Pair Mis," Nucleic Acids Research, Vol. 21, No. 22, p				
	EB	Lee, L.G., et al., "Allelic Discrimination b No. 16, pp. 3761-66 (1993).	y Nick-Translation PCR with Fluorogenic Pro	bes," Nucleic Acids Research, Vol. 21,			
	EC	Linz, U., "Thermocycler Temperature Var	iation Invalidates PCR Results," Biotechnique	es, Vol. 9, No. 3, pp. 286-90 (1990).			
	ED		Fluorescent Dyes at Opposite Ends Provide a Hybridization,* PCR Methods and Applicatio				
	EE	Livak, K.J., "Quantitation of DNA/RNA L	Livak, K.J., "Quantitation of DNA/RNA Using Real-Time PCR Detection," Perkin-Elmer Applied Biosystems Rep				
	EF	Morrison, L.E., "Detection of Energy Tran Larry J. Kricka, Academic Press, Inc., San	sfer and Fluorescence Quenching," Nonisotor Diego, Chap. 13, pp. 311-52 (1992).	pic DNA Probe Techniques, Edited by:			
	EG	Morrison, L.E., et al., "Sensitive Fluoresce Solution," <u>Biochemistry</u> , Vol. 32, pp. 309	nce-Based Thermodynamic and Kinetic Meas 5-3104 (1993).	surements of DNA Hybridization in			
	ЕН	Nilsson, P., et al., "Real-Time Monitoring 224, pp. 400-408 (1995).	Nilsson, P., et al., "Real-Time Monitoring of DNA Manipulations Using Biosensor Technology," <u>Analytic Biochemistry</u> , V 224, pp. 400-408 (1995).				
	EI	Oste, C.C., "PCR Instrumentation: Where Birkhauser, Boston, Chap. 14 (1994).	Do We Stand?, The Polymerase Chain React	tion, Edited by Mullis, et al.,			
	EJ	Perry, R.H., et al., "Heat Transmission by York, Chap. 10, pp. 48-56 (222?). No c	Radiation," Chemical Engineers' Handbook, 5	5th ed., McGraw Hill Book Co., New			
	EK	Ririe, K.M., et al., "Product Differentiation Analytical Biochemistry, Vol. 254, pp. 15	n by Analysis of DNA Melting Curves during 4-160 (1997).	the Polymerase Chain Reaction,"			
	EL	Segal, G.H., et al., "Identification of Mono American Journal of Pathology, Vol. 141,	iclonal B-cell Populations by Rapid Cycle Pot No. 6, pp. 1291-97 (1992).	ymerase Chain Reaction," The			
	ЕМ	Service, R.E., "The Incredible Shrinking L Vol. 268, No. 5207, pp. 26 (7 April 1995).	aboratory: Microchips Allow Miniaturization	of Analytical Laboratories," Science,			
	EN	Stimpson, D.I., "Real-time Detection of Di Guides," Proc. Natl. Acad. Sci. USA, Vol.	NA Hybridization and Melting on Oligonucleo 92, pp. 6379-83 (1995).	otide Arrays by Using Optical Wave			
V	EO	Swerdlow, H., et al., "Fully Automated DN pp. 848-855 (1997).	IA Reaction and Analysis in a Fluidic Capilla	ry Instrument," <u>Anal. Chem.</u> , Vol. 69,			
MAS	EP .	Tombler, E.R., et al., "Spectrofluorometric BioTechniques, Vol. 15, No. 6, pp. 1060-6	Assay for Hybridization of Oligodeoxynucleo	otides Using Ethidium Dimer,"			
EXAMINER	W	1	DATE CONSIDERED	7/04			
		reference considered, whether or not citation is in copy of this form with next communication to applic		gh citation if not in conformance and			

			T					
PTO-14	49	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY, DOCKET NO. 7475-66667	SERIAL NO. 09/631,33900				
LIST OF PRIOR ART CITED B PAPPLICART			APPLICANT Carl T. Wittwer et al.	GROUP UNKNOWN UNKNOWN				
	•	Mov 0 2 20000	FILING DATE August 3, 2000	GROUP LIL RO				
•	OTHER PRIOR ART (Including Author, Title, Pertinent Pages, Etc.)							
Way	EQ	Tyagi, S., et al., "Molecular Beacons: Pro (1996).	bes that Fluoresce upon Hybridization," <u>Natu</u>	re Biotechnology, Vol. 14, pp. 303-08				
۲	ER	Weis, J.H., et al., "Detection of Rare mRN	NAs via Quantitative RT-PCR," Trends in Ger	netics, Vol. 8, No. 8, pp. 263-64 (1992).				
	ES	Wilding, et al., "PCR in Silicon Microstro	icture," Clinical Chemistry, Vol. 40, No. 9, pp	o. 1815-18, (1994).				
	ЕТ	Willard, H.H., et al., "Gas Chromatograph CA, Chap. 16, pp. 454 (2997). No Sa	ny," <u>Instrumental Mothods of Analysis</u> , 6th cd	, Wadsworth Publishing Co., Belmont,				
	EU	1	ne Required for DNA Amplification by Efficie					
	EV	Wittwer, C.T., et al., "Automated Polymer 17, No. 11, pp. 4353-4357 (1989).	rase Chain Reaction in Capillary Tubes with h					
	EW	Wittwer, C.T., et al., Rapid Cycle DNA app. 76-83 (1991).	Amplification: Time and Temperature Optimis	zation," BioTechniques, Vol. 10, No. 1,				
	EX.	Wittwer, C.T., et al., "Rapid Cycle Allele- Chemistry, Vol. 39, No. 5, pp. 804-809 (1	Specific Amplification: Studies with the Cyst 993).	ic Fibrosis ΔF ₃₀₄ Locus," <u>Clinical</u>				
	EY	Wittwer, C.T., et al., "Rapid Cycle DNA A Boston, Chap. 15 (1994).	Amplification," <u>The Polymerase Chain Reacti</u>	on, Edited by: Mullis, et al., Birkhauser,				
	EZ	Wittwer, C.T., et al., "Continuous Fluore: 130-138 (1997).	scence Monitoring of Rapid Cycle DNA Amp	lification," BioTechniques, Vol. 22, pp.				
	FA	Wittwer, C.T., et al., "The LightCycler: A BioTechniques, Vol. 22, pp. 176-181 (199	Microvolume Multisample Fluorimeter with 197).	Rapid Temperature Control,"				
	FB	Wittwer, C.T., et al., "Fluorescence Monit F., Birkhauser, Boston (1998).	oring of Rapid Cycle PCR For Quantification	," Gene Quantification, Edited by: Ferre,				
	FC	Yguerabide, J., et al., "Quantitative Fluore Fluorescent Interculator," <u>Analytical Bioc</u>	escence Method for Continuous Measurement hemistry, Vol. 228, pp. 208-20 (1995).	of DNA Hybridization Kinetics Using a				
	FD	Biotherm Corporation Advertisement, Bio	Oven (1991).					
	FE	Ericomp Advertisement, Twinblock Syste	m (1991).					
	FF	Techne Advertisement, PHC-1 Dri-Block	(1988).					
//_	FG	Hybaid Advertisement, Hybaid Heating as	nd Cooling Block (1988).					
<u></u>	FH	Eppendorf Advertisement, Eppendorf Mic	roCycler (1988).	·				
Miss	Fl	COY Advertisement, Tempcycler Model S	0 Microtube Incubator (1991)					
EXAMINER	h	1 Ph	DATE CONSIDERED 2	2/04				
		reference considered, whether or not citation is in or copy of this form with next communication to applic		gh citation if not in conformance and				

			1	<u> </u>	
PTO-144	19	U.S. DEPARTMENT OF COMMERCE	ATTY. DOCKET NO. 7475-66667	SERIAL NO. 09/631,339	
		PATENT AND TRADEMARK OFFICE	7473-00007		
			APPLICANT	C	
LIST O	F PRI	OR ART CITED BOAPPLACANT	Carl T. Wittwer et al.	REC 1104	
				S T M	
		NOV 0 Z 2000	FILING DATE August 3, 2000	GROUP HAIL HAIL SIVE	
			71186312, 2000		
		TRADEMA ON O		ROOM	
		OTHER PRIOR ART (Including	ng Author, Title, Pertinent Pages, Et	(c.) X	
ann	FJ	Idaho Technology Advertisement and Spe	cification Sheets for 1605 Product (1991).		
P	FK	Perkin-Elmer Advertisement, ABI Prism 7	700 Sequence Detection System (1991).		
	FL	Clark et al. "Cassettes Simplify Small-sa	mple Dialysis," R&D Magazine, p.31, Septem	nbcr 1995.	
	1				
	FM	"Let the Microchip Fall Where Diagnostic (1994).	s Lies: Implications: A Diagnostic Revolution	?," Genesis Report-DX, Vol. 4, No. 3	
	FN	*Let the Microchip Fall Where Diagnostic (1994).	s Lies: Implications: Affymetrix: DNA on a C	Chip," Genesis Report-Dx, Vol. 4, Na. 3	
	FO	*PCR Detection Blows Cover on Lyme Di	sease, Q Fever," Biotechnology Newswatch,	Vol. 10, Nn. 1 (Jan. 1, 1990).	
	FP	Schoffner et al., "Chip PCR. 1. Surface pa Vol. 24, No. 2, pp. 375-379, 1996.	ssivation of microfabricated silicon-glass chip	os or PCR", <u>Nucleic Acids Research,</u>	
,	FQ	Cheng et al., "Chip PCR. II, Investigation Nucleic Acids Research, Vol. 24, No. 2, p	of different PCR amplification systems in mi	crofabricated silicon-glass chips",	
0	FR	Operation manual for HP-5880A Gas Chr.	1/2 0 1 0/1.1	rd	
MAG	FS	Operation manual for the MIC 6000	No Rote Provided		
EXAMINER	··················/	(1)	DATE CONSIDERED 7	19/511	
	\mathcal{U}	" M	<i>y</i>	[[0]	
*EXAMINER:	Initial i	f reference considered, whether or not citation is in c	onformance with MPEP 609; Draw line throu	gh citation if not in conformance and	
not considered. Include copy of this form with next communication to applicant.					

PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE			ATTY. DOCKET NO. 7475-66667		SERIAL NO. 09/631,339		
LIST	OF PR	IOR ART CITED BY AP	PLICANTE	APPLICANT Carl T. Wittwer et al.				
		\3	0 2 2000	FILING DATE August 3, 2000	GROUP unknown			
		TAT a	MADE PATEN	T DOCUMENTS	Consecutive daylesses			
*Examiner Initial		Document Number	Date	Name .	Class	Subclass	Filing Date If Appropriate	
Was	GA	3,556,659	Jan. 19, 1971	R.C. Hawes				
MA	GB	4,908,112	Mar. 13, 1990	Pace				
NO	GC	5,599,504	Feb. 4, 1997	Hosoi et al.				
	GD							
	GE	, , , , , , , , , , , , , , , , , , ,		٠.				
	GF _							
	GG							
	GH							
	GÌ							
	GJ							
	GK			·				
			FOREIGN PAT	TENT DOCUMENTS	_			
		Document Number	Date	Country	Class	Subclass	Translation	
							g Y	
WES	GL	0 171 140 A2	Feb. 12, 1986	EPO				
	GM	0 211 334 A1	Feb. 25, 1987	EPO				
	GN	0 519 623 A2 .	Dec. 23, 1992	EPO				
I_{l}	GO	0 580 362 A1	Jan. 26 1994	EPO				
W	GР	528259	Apr. 21, 1983	Australia				
hars	GQ	WO 95/21266	Aug. 10, 1995	РСТ				
		OTHER REF	ERENCES (Includi	ng Author, Title, Date, Pertinent Pages, Etc.)			
			-			- ;		
	GR					Cal		
		· · · · · · · · · · · · · · · · · · ·				700	RE	
	GS					3 5	30	
						<u>₩</u> - 6 20	IVE	
	GT 1				4	ROOM	0.	
EXAMINER	1/	n		DATE CONSIDERED 7/9/	oy	<u> </u>		
*Examiner: In	_			/ //.	1			